Preparedness and Confidence Levels of Nursing Students in Executing Basic Life Support

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Abstract. Basic Life Support (BLS) is delivered swiftly and performed accurately BLS encompasses critical emergency procedures, including cardiopulmonary resuscitation (CPR), the utilization of automated external defibrillators (AEDs), and airway management. Examine the relationship between prior BLS training and the confidence levels expressed by the students. This research adopted a descriptive cross-sectional approach and relied on an online survey developed from a standardized, previously validated instrument. The participants in this study were fourth-year undergraduate nursing students enrolled in accredited nursing programs throughout Iraq.   Most participants were affiliated with the College of Nursing at Thi-Qar University (72.2%), while lesser proportions represented Al-Muthanna University (14.8%) and Al-Ain University (11%). The ages of the pupils ranged from 21 to 40 years, with the most prevalent ages being 22 and 23 years, each accounting for 25.9% (n = 14). Students with previous BLS training demonstrated a marginally higher average confidence score (Mean = 3.42, SD = 0.81) in comparison to those without such training (Mean = 3.13, SD = 1.11). notable deficiencies remain—particularly concerning the use of Automated External Defibrillators (AEDs) and the extent of prior formal training. The absence of a notable correlation between prior BLS training and confidence levels emphasizes the importance of implementing structured, standardized, and periodic training programs within nursing curricula.

Highlights

1. Nursing students demonstrated moderate readiness and confidence in performing Basic Life Support, with overall scores around the midpoint of the scale.
2. Knowledge and confidence related to Automated External Defibrillator (AED) use were consistently the weakest areas.
3. Prior BLS training showed no significant association with confidence levels, underscoring the need for structured, repetitive, and simulation-based training programs.

Keywords: Basic Life Support, Automated Defibrillators, Cardiopulmonary resuscitation, Nursing Students, Preparedness, Confidence

Introduction

Cardiac arrest remains a predominant cause of mortality worldwide. Nonetheless, survival rates can be significantly improved when Basic Life Support (BLS) is delivered swiftly and performed accurately [1]. BLS encompasses critical emergency procedures, including cardiopulmonary resuscitation (CPR), the utilization of automated external defibrillators (AEDs), and airway management. These interventions constitute an essential foundation for preserving life until advanced medical management becomes available. Delayed or incorrect implementation of these interventions might cause unnecessary death and other effects in clinical settings or the general population [2].

Nurses' Role in Basic Life Support

Nurses frequently serve as the initial responders in cardiac emergencies across various clinical environments, enabling them to promptly initiate essential life-support measures. Timely recognition of cardiac arrest and the prompt application of basic life support are crucial for the patient's survival. The survival of a patient and their overall clinical outlook hinge on the ability to provide prompt and effective basic life support. Therefore, before starting clinical work, it is essential that nursing students understand the basics of BLS and get comfortable with it. [3[4].

[5] highlight that confidence plays a crucial role in skill retention, precise performance, and the ability to respond effectively in emergencies. Studies consistently show that even with theoretical training in nursing education, most nursing students struggle with competence and confidence when applying these skills in real clinical environments

Variations in education:

Basic Life Support (BLS) is taught in the majority of nursing schools, although the approaches and reinforcement vary. Comprehensive BLS training is challenging due to several ongoing issues. Challenges include insufficient guided practical training, sporadic skill practice, and restricted access to simulation technologies [6]

The identified shortcomings undermine students' confidence in executing BLS procedures and hinder their ability to retain essential psychomotor skills. BLS instruction in numerous academic programs tends to be largely theoretical, relying heavily on lecture-based methods that provide limited practical training. Many studies have shown that students who lack practical experience tend to feel less prepared and confident in their abilities [7] [8].

The Importance of Assessing Nursing Students' Competence.

Given the crucial responsibilities nurses have in managing emergencies and delivering life-saving care, it is essential to consistently assess their proficiency in Basic Life Support (BLS). Evaluating students' confidence is essential, as their self-efficacy plays a vital role in their capacity to handle high-pressure, urgent clinical scenarios. By conducting these evaluations, educators can identify specific areas where their current teaching methods may be lacking and develop targeted, effective strategies to enhance the quality of instruction [9].

Justifies for the Study

Iraq, similar to numerous other regions, lacks sufficient empirical data to assess the confidence and preparedness of nursing students in Basic Life Support (BLS). This gap highlights the necessity for more focused research to effectively evaluate their skills and identify specific areas where additional instruction is required. Not having this information makes it hard to figure out if current training programs are good enough to teach students the important skills they need to save lives. By using structured assessment tools to find out how students feel and what they can do, nursing schools can learn a lot that helps them improve their curriculum and make sure that graduates have the theoretical knowledge and practical skills they need for emergency care situations.

Goals of the Research

The goal of this study is to find out how ready fourth-year nursing students are to do Basic Life Support (BLS). More particularly, it wants to see how confident students say they are in doing BLS procedures.

Examine the relationship between prior BLS training and the confidence levels expressed by the students.

Methods and Materials

This research adopted a descriptive cross-sectional approach and relied on an online survey developed from a standardized, previously validated instrument. This approach facilitated the evaluation of nursing students' self-reported readiness and assurance in executing Basic Life Support (BLS) at a specific moment.

Research Collective

The participants in this study were fourth-year undergraduate nursing students enrolled in accredited nursing programs throughout Iraq. This cohort was deliberately selected based on the assumption that they had already fulfilled the core clinical and emergency-care components of their academic training. The survey has 54 students from Thi-Qar University, Al-Ain University, and Al Muthanna University.

Method of Sampling

To get people to take part in the study, a convenience sample method was used. The questionnaire was shared publicly via social media and email, so students may choose to fill it out and send it in. To be eligible, participants had to be nursing students in their fourth year, have reliable internet access, supply informed consent, and be able to fill out the survey on their own.

Tool for Gathering Information

For data collection, the researcher utilized a well-designed structured questionnaire consisting of three primary components. The first part asked for demographic information, including age, gender, and whether or not the person had ever taken Basic Life Support (BLS) training. The second part asked students how

ready they were to do BLS procedures, and the third part asked how sure they were that they could handle BLS situations. Both the preparedness and confidence domains were evaluated using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).The components of the questionnaire were derived from established, validated instruments documented in the academic literature, as well as from the guidelines issued by the American Heart Association (AHA).

Validity and Reliability

A panel of experienced faculty members with specific knowledge in nursing education and emergency care conducted a thorough evaluation to confirm that the content was valid. Their evaluation confirmed that the questionnaire effectively captured the intended constructs for measurement. A little test with 15 nursing students was done to verify that the questionnaire was straightforward and worked as it should. Cronbach's alpha was used to find out how stable the measure was. Values above 0.80 showed that the instrument was very consistent inside.

Steps for Analyzing Data

We utilized IBM SPSS Statistics version 25 to analyze and work with the data we gathered. We calculated a range of descriptive statistics, including means, standard deviations, and frequency distributions, to showcase key patterns and outline the demographic traits of the individuals involved. Furthermore, to explore potential connections among key variables, inferential analyses were conducted utilizing methods such as Pearson's correlation and the chi-square test. The connection between students' self-reported confidence and their previous BLS training stood out as particularly noteworthy.

Obtaining ethical clearance and ensuring participant safety

The appropriate institutional review board approved the study. In the course of the research process, every respondent enjoyed complete anonymity, and participation was entirely voluntary, supported by a range of safeguards. At the outset of the online survey, participants were provided with an informed consent

statement. In order to maintain confidentiality, we ensured that no personal identifying information was collected.

Results

This part offers an in-depth analysis of data gathered from 54 fourth-year nursing students, showcasing their levels of readiness and confidence in executing Basic Life Support (BLS).

Participant Demographics (Tables 1a-e) Among the 54 participants, a significant bulk were female, comprising 75.9% (n = 41), while male students represented 24.1% (n = 13). Most participants were affiliated with the College of Nursing at Thi-Qar University (72.2%), while lesser proportions represented Al-Muthanna University (14.8%) and Al-Ain University (11%). The ages of the pupils ranged from 21 to 40 years, with the most prevalent ages being 22 and 23 years, each accounting for 25.9% (n = 14). The mean age was 23.8 years (SD = 3.1). A substantial proportion of students (72.2%, n = 39) had not previously undergone a BLS training course, whereas 27.8% (n = 15) reported prior training experience. Furthermore, 63% (n = 34) reported never having encountered or participated in a real-life BLS situation, whereas 37% (n = 20) had at least some level of exposure.

Readiness to Execute Basic Life Support (Table 2)

The mean preparedness score across five items on a 5-point Likert scale was 3.49 (SD = 0.97), reflecting a moderate perceived readiness to carry out BLS tasks. Among the individual components, students indicated the highest level of preparedness in airway and pulse assessment (Mean = 4.06, SD = 0.94), implying they felt most assured in identifying indications of cardiac arrest. Conversely, familiarity with the use of an Automated External Defibrillator (AED) achieved the lowest preparedness score (Mean = 2.91, SD = 1.43), indicating a level below neutrality.

Additional competencies, such as familiarity with BLS procedures (Mean = 3.54, SD = 1.27), proficiency in performing accurate chest compressions (Mean = 3.59, SD =

1.21), and the ability to recognize cardiac arrest (Mean = 3.35, SD = 1.20), exhibited a moderate degree of preparedness, accompanied by significant variability in individual responses, as indicated by the comparatively high standard deviations.

Self-Reported Confidence Metrics (Table 3)

The mean confidence score was 3.21 (SD = 1.03), little lower than the preparation score, but still indicating a moderate degree of self-assurance. Students demonstrated the highest level of confidence in collaborating effectively with healthcare teams (Mean = 3.50, SD = 1.24). In contrast, the level of confidence in the operation of an AED was notably low (Mean = 2.91, SD = 1.29), which is indicative of the findings related to preparedness. A measured level of confidence was exhibited in the performance of chest compressions (Mean = 3.33, SD = 1.33) and the delivery of rescue breaths (Mean = 3.22, SD = 1.30). Other domains, including responding to sudden cardiac arrest (Mean = 3.28, SD = 1.16), maintaining composure (Mean = 3.15, SD = 1.27), clinical readiness (Mean = 3.19, SD = 1.26), and rapid decision-making (Mean = 3.11, SD = 1.18), also centered around the midpoint, indicating variability in perceived confidence.

Relationship Between Training and Confidence (Table 4)

Students with previous BLS training demonstrated a marginally higher average confidence score (Mean = 3.42, SD = 0.81) in comparison to those without such training (Mean = 3.13, SD = 1.11). Nevertheless, this disparity did not reach statistical significance. The results of Welch's t-test (t = 1.08, p = 0.286) and the Mann–Whitney U test (U = 337.0, p = 0.395) showed that both tests produced p-values above the 0.05 threshold, indicating an absence of statistically significant differences between the groups.

In addition, the Point-Biserial correlation coefficient revealed a small, positive relationship between previous BLS training and confidence scores (r = 0.13, p = 0.350); however, this association was not statistically meaningful. Taken together,

these outcomes suggest that earlier participation in BLS courses did not substantially influence how confident students felt at the time of the study.

Several factors may explain this lack of significance, including the limited number of students who had undergone prior BLS training (n = 15), inconsistencies in the depth or recency of the training they received, and the possible influence of unmeasured variables that were not captured within the survey.

Comprehensive Statistical Tables

Table 1a. Distribution of Colleges

College/ University	Frequency (n)	Percentage (%)
Thi-Qar/ College Nursing	39	72.2
Al-Muthana University	8	14.8
Al-Ain University	6	11.1
University of Kufa	1	1.9

Table 1b: Distribution of Gender

	Sex	Frequency (n)	Percentage (%)
0	Female	41	75.9
1	Male	13	24.1

Table 1c: Distribution of Age Categories

	Age	Frequency (n)	Percentage (%)
0	22	14	25.9
1	23	14	25.9
2	21	7	13
3	25	7	13

4	26	3	5.6
5	28	2	3.7
6	24	2	3.7
7	30	2	3.7
8	22	1	1.9
9	27	1	1.9
10	40	1	1.9

Table 1d: Prior BLS Certification

	Have you ever taken a BLS course?	Frequency (n)	Percentage (%)
0	No	39	72.2
1	Yes	15	27.8

Table 1e: Witnessed or Participated in Actual BLS Case

	Have you ever witnessed or participated in a real situation that required BLS?	Frequency (n)	Percentage (%)
0	No	34	63
1	Yes	20	37

Table 2: Summary Statistics for BLS Preparedness Items

	N	Mean	Std Dev	Median	Min	Max
I Know the basic steps of CPR.	54	3.54	1.27	4	1	5
I can identify a cardiorespiratory arrest.	54	3.35	1.2	4	1	5
I know how to assess airway and pulse.	54	4.06	0.94	4	1	5
I know how to do push-ups	54	3.59	1.21	4	1	5

properly.

	N	Mean	Std Dev	Median	Min	Max
I Know when and how to use an AED.	54	2.91	1.43	3	1	5

Table 3: Summary Statistics for BLS Confidence Measures

	N	Mean	Std Dev	Median	Min	Max
I can perform chest compressions at the correct pace and depth.	54	3.33	1.33	4	1	5
I can effectively provide rescue breathing.	54	3.22	1.3	3.5	1	5
I can use an AED when needed.	54	2.91	1.29	3	1	5
I can coordinate with the emergency care team.	54	3.5	1.24	4	1	5
I feel confident in my ability to act in the event of sudden cardiac arrest.	54	3.28	1.16	4	1	5
I don't feel nervous when thinking about offering BLS.	54	3.15	1.27	4	1	5
I believe I am well prepared to perform BLS in a clinical setting.	54	3.19	1.26	3.5	1	5
I have confidence in my quick decisions during emergencies.	54	3.11	1.18	3	1	5

Table 4a: Comparison of Confidence Scores Based on Training Status

Group	N	Mean Confidence	Std Dev Confidence
Trained	15	3.42	0.81
Not Trained	39	3.13	1.11

Table 4b: Results of Statistical Analysis

Test	Statistic	p-value
Welch's T-test	t=1.08	0.286
Mann-Whitney U	U=337.00	0.395

Table 4c: Point-Bi-serial Correlation Coefficient

Variable 1	Variable 2	Correlation (r)	p-value
BLS Training (Yes/No)	Overall Confidence Score	0.13	0.35

Discussion

This study intended to evaluate the readiness and self-assurance of nursing students in executing Basic Life Support (BLS), examine the impact of prior training, and provide insights for future educational strategies. The results showed that the 54 participants had moderate self-reported readiness (mean = 3.49) and confidence (mean = 3.21). However, notable shortcomings were identified, especially regarding the use of Automated External Defibrillators (AEDs), which recorded the lowest average confidence and preparedness scores (mean = 2.91 for both). The results align with a significant amount of previous research [10] [11] showing that, despite receiving theoretical BLS training, nursing and medical students often lack both the practical skills and confidence needed. The noted deficiency in AED-related skills aligns with trends found in the extensive BLS literature, indicating that even those students who have undergone training often exhibit a lack of confidence or a reduced sense of competence in effectively using defibrillators.

It's alarming to note that a staggering 72.2% of the study participants reported they have never received official BLS training. The findings align with broader regional trends, highlighting the continued demand for skill-focused, well-organized educational initiatives. According to [12] [13], a mere 29.6% of a group of 1,165 university students claimed to have had any type of CPR training. The high proportion of students in this study who had never undergone BLS training suggests a severe deficiency in basic clinical education and reflects a missed opportunity to provide future medical professionals with the necessary emergency-care skills. Furthermore, there was no statistically significant relationship between students' previous BLS training and their current confidence levels (r = 0.13, p = 0.350). This outcome indicates that attendance at a training session alone may not suffice to

bolster students' confidence, unless supplemented by regular practice and opportunity to apply skills in genuine scenarios.

Additionally, there were no notable differences in mean confidence scores between students who had received training and those who had not ($p > 0.05$). The results observed here differ from previous studies [14] [15], which indicated a significant association between prior training and improved preparation and confidence.

A range of credible explanations could clarify this inconsistency: Limitations in sample size: The cohort of previously trained students ($n = 15$) might not have been sufficiently large to identify significant statistical differences. The analysis failed to account for the differences in the quality and timeliness of previous training, elements that could greatly influence knowledge retention and confidence levels. The essence of self-reporting is fundamentally subjective; assurance does not always align with actual ability. Students may evaluate their own competencies with either unwarranted confidence or undue self-doubt, independent of any prior training they may have received. Recent studies underscore the significance of structured, simulation-based teaching methods, bolstered by either immediate or delayed debriefing sessions. [16] [17], emphasized simulation to improve reflective practice, promote skill development, and mentally prepare personnel for emergency care situations. Our findings underscore the importance of implementing experiential learning methods to effectively cultivate psychomotor skills, while also enhancing students' confidence and decision-making abilities in high-pressure situations.

Conclusion

Although nursing students in this study exhibited moderate levels of preparedness and confidence in executing Basic Life Support (BLS), notable deficiencies remain—particularly concerning the use of Automated External Defibrillators (AEDs) and the extent of prior formal training. The absence of a notable correlation between prior BLS training and confidence levels emphasizes the importance of implementing structured, standardized, and periodic training programs

within nursing curricula. To ensure that future nurses are fully equipped to act decisively in real-world emergency situations, it is imperative to combine excellent simulation-based training with methodical debriefing to enhance technical competency and confidence.

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